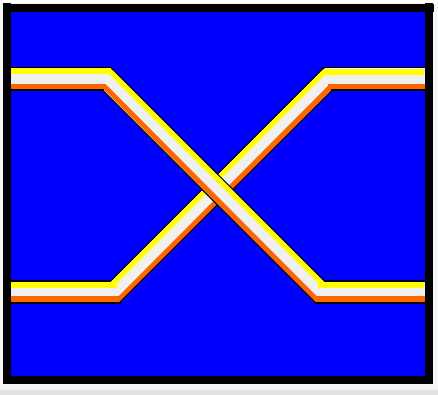
Synoptics 3xxx



Supports Management Module SM-SYN1001/4/5

APRISMA SPECTRUM® POWERED SOLUTIONS

Device Management

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Introduction

This section introduces the SPECTRUM Device Management documentation for SynOptics 3xxx devices.

This introduction to the SynOptics documentation contains the following information:

- *Purpose and Scope*
- *Required Reading* (Page 6)
- *Supported Devices* (Page 7)
- *The SPECTRUM Model* (Page 10)

Purpose and Scope

Use this documentation as a guide for managing SynOptics devices with the SPECTRUM management module SM-SYN1001/4/5. The documentation describes the icons, menus, and views that enable you to remotely monitor, configure, and troubleshoot SynOptics devices through software models in your SPECTRUM database.

Only information specific to the supported management module is included under this topic. For general information about device management using SPECTRUM and for explanations of basic SPECTRUM functionality, and navigation techniques, refer to the documentation listed under *Required Reading*.

Required Reading

To use this documentation effectively, you must be familiar with the information covered by the other SPECTRUM online documentation listed below.

- ***Getting Started with SPECTRUM for Operators***
- ***Getting Started with SPECTRUM for Administrators***
- ***How to Manage Your Network with SPECTRUM***
- ***SPECTRUM Views***
- ***SPECTRUM Menus***
- ***SPECTRUM Icons***

- ***Management Module Software Release Notice***

Supported Devices

The SynOptics 3000 Series Hubs are 12 (3000) and 4 (3030) slot concentrators. Table 1 through Table 4 lists the modules based on technology that are installed in the concentrators above.

The model type refers to the management module software package used to specify attributes, actions, and associations for the physical device using the Simple Network Management Protocol (SNMP) and Management Information Bases (MIBs). The following section details the different model types provided by this management module, and describes the supported physical modules corresponding to each model type.

HubSynSer3xxx

This model type represents the SynOptics Model 3000 Ethernet hub series of devices. Table 1 provides a list of supported Ethernet models and their descriptions.

Table 1: Supported Ethernet Model Types

Model	Description
3040	Network control engine (Sparc)
3040s	Network control engine (Sparc)
3100r	Summing module
3174	Workstation Controller
3301	Ethernet ThinNet host module
3301_75	Thin net ether host module
3301_93	Thin net ether host module
3302	Shielded twisted pair ether host module
3304a	10BASE-F host module
3304st	Ether fiber host module
3305	UTP Ethernet host module
3307	UTP Ethernet 50 pin host module
3307a	Ether host module with amp
3307hd	UTP Ethernet 50 pin host module

Table 1: Supported Ethernet Model Types

Model	Description
3308	Ether host module
3308a	Ether host module
3308b	10BASE-T Ethernet host module
3313	Ether AUI NMM with RS232 port
3313a	Ether AUI NMM with RS232 port
3313m	Ether AUI NMM with modem
3313s	Ether AUI NMM with modem
3313sa	Ethernet NMM (super agent)
3314a	Ether FOIRL NMM w/RS232 port
3314s	Ether FOIRL NMM with modem
3314sa	Ethernet FOIRL NMM (super agent)
3314st	Ether FOIRL NMM w/RS232 port
3314mst	Ether FOIRL NMM with modem
331x	Ether NMM w/unknown MDA type
3323	Ether AUI local bridge
3328	Ethernet Switching Engine
3333	Ethernet AUI retiming module
3334st	Ethernet FOIRL retiming module
3356	Ether remote bridge

Table 1: Supported Ethernet Model Types

Model	Description
3368	10BASE-T Ethernet host module
3383	Ether AUI local router
3384	Ether FOIRL local router
3386	Cisco remote router
3394	Ether-localtalk router
3395	Xyplex terminal server
3395a	Xyplex terminal server

HubSynTR3xxx

This model type represents the SynOptics Model 3000 Token Ring hub series of devices. Table 2 provides a list of supported Token Ring models and their descriptions.

Table 2: Supported Token Ring Model Types

Model	Description
3100r	Summing module
3502	STP Token Ring host module
3502a	STP Token Ring host module
3502b	STP/UTP Token Ring host module
3504-st	Fiber Token Ring host module
3505	UTP Token Ring host module
3505a	UTP Token Ring host module
3505b	UTP/STP Token Ring host module
3512	TR NMM w/STP ring in/ring out
3512s	TR NMM w/STP ring in/ring out
3513	STP Token Ring NMM
3513s	STP TR repeater NMM
3513sa	Token Ring NMM (super agent)
3514st	Fiber Token Ring NMM
3514s	TR NMM w/FOIRL ring in/ring out
3517sa	Fiber/STP Token Ring NMM (super agent)
351x	TR NMM module w/unknown MDA type
3522	STP Token Ring Local Bridge

Table 2: Supported Token Ring Model Types

Model	Description
3522a	TR Local Bridge
3532	STP Token Ring ring in/ring out module
3534	FOIRL repeater
3552	STP ring in/ring out module
3554	FOIRL ring in/ring out module

HubSyn3FDDI

This model type represents the SynOptics FDDI 3000 series of devices. Table 3 provides a list of supported FDDI models and their descriptions.

Table 3: Supported FDDI Model Types

Model	Description
3904	Multi-mode Fiber FDDI Host module
3904-2sm	Single-mode Fiber FDDI Host module
3905	UTP FDDI Host module
3910s	Multi-mode Fiber FDDI NMM
3910s-sm	Single-mode Fiber FDDI NMM

BdgSyn332xS
This model type represents the SynOptics 332xS Ethernet Local Bridge. The bridge module in the 3000 Series hub does not recognize the rest of the hub, therefore any Hub Chassis views are not available. Table 4 provides a list of supported Bridge models and their descriptions.

Table 4: Supported Bridge Model Types

Model	Description
3323s	Ethernet AUI high speed local bridge
3324-st	Ethernet FOIRL high speed local bridge
3323	Ethernet AUI high speed local bridge
3324-st	Ethernet FOIRL high speed local bridge

The SPECTRUM Model

The SynOptics Series 3000 Management Module supports four types of models to represent both the physical hub and its interfaces. The following sections provide a description of these models and how they are related. Table 5 lists the supported MIBs.

Table 5: Supported MIBs

MIB	Release Number	Imports From
SynOptics Common	4.2.0	RFC1155-SMI RFC1213-MIB RFC-1212
SynOptics Ethernet	4.1	RFC-1213-MIB RFC-1155-SMI RFC-1212
SynOptics Basic Ethernet & Token Ring 2K & 3K	N/A	RFC1155-SMI RFC-1212 RFC-1215
SynOptics Token Ring	4.0.2	RFC1155-SMI RFC-1212 RFC1213-MIB SynOptics-Common-MIB
SynOptics FDDI Concentrator	2.1.2	RFC1155-SMI RFC-1212 RFC1213-MIB SynOptics-Common-MIB
SynOptics Ethernet Local Bridge	N/A	RFC1065-SMI

The rest of this document covering management modules SM-SYN1001/4/5 is organized as follows:

- *Device View* (Page 12)
- *Configuration Views* (Page 23)
- *Application Views* (Page 60)
- *Performance Views* (Page 72)
- *Model Information View* (Page 73)

Device View

This section describes the various Device views available for models of SynOptics 3000 devices in SPECTRUM.

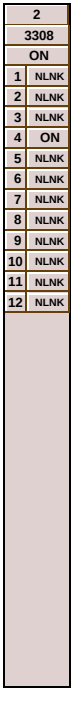
Device views use icons and labels to represent the modeled device and its components such as modules, ports, and applications. There are three types of device views for these models:

- *Logical Device View*
- *Ethernet Module Icon* *(Page 13)*
- *Bridge Device View* *(Page 20)*

Logical Device View

This view displays a logical representation of the modules installed in the hub. The logical module representation provides information about the individual modules and its ports. Figure 1 shows examples of a Logical Device view with module for Ethernet, Token Ring, and FDDI hubs. If the configuration changes you see the corresponding change within this Device view after the next polling cycle for the hub.

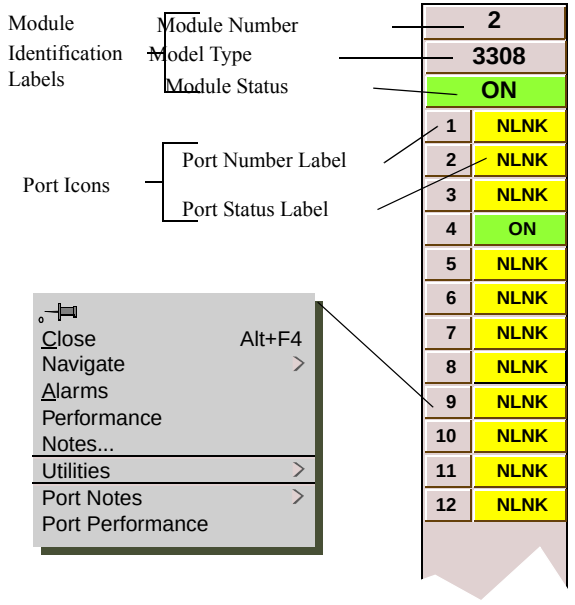
Figure 1: Logical Device View



Ethernet Module Icon

This icon is a logical representation of the physical module. It shows the location in the hub chassis and its front panel interfaces and ports. Figure 2 shows an example of an Ethernet Module icon.

Figure 2: Ethernet Module Icon



Module Identification Labels

These labels provide the following information:

Module Number

Identifies the number of the module in the hub. Double-click this label to access the Module Notes.

Module Type

Identifies the type of module that occupies this slot in the hub. Double-click this label to access the Model Information view described in the ***SPECTRUM Views*** documentation.

Module Status

Identifies the status of the module. Double-click this label to access the performance view. Performance views are described in the ***SPECTRUM Views*** documentation. Module status conditions are defined as follows:

- ON - Green
- PAR (Partitioned) - Yellow

Module Icon Subviews Menu Selections

Table 6 lists each of the device-specific Icon Subviews menu selections available for this device.

Table 6: Module Icon Subviews Menu

Menu Selection	Description
Module Notes	Opens the *Module Notes* view which allows you to keep notes specific to this module.
Module Configuration	Opens the *Ethernet Configuration* (Page 26) view.
NMM Nodes	Opens the *NMM Nodes* (Page 23).
NMM Paths	Opens the *SynOptics FDDI NMM Paths Table* View.
NMM Ring Status	Opens the *SynOptics FDDI NMM Ring Status View* (Page 38).
NMM Station	Opens the *NMM Station*.
NMM Topology	Opens the *NMM Topology* view options.
NMM Optical Bypass Switch	Opens the *SynOptics NMM Optical Bypass Switch View* (Page 43).

Port Icon

Port icons display the following information for each port on the device:

Port Type Label

Identifies which port this icon represents. Double-click this label to access the Port Notes view.

Port Status Label

Displays the status of the port. Double-click this label to open the Port Performance view. Port status conditions are defined as follows:

- `NLNK` (No Link) - Yellow
- `ON` - Green
- `OFF` - Blue

Port Icon Subviews Menu Selections

Table 7 lists each of the port-specific Icon Subviews menu selections available for this device.

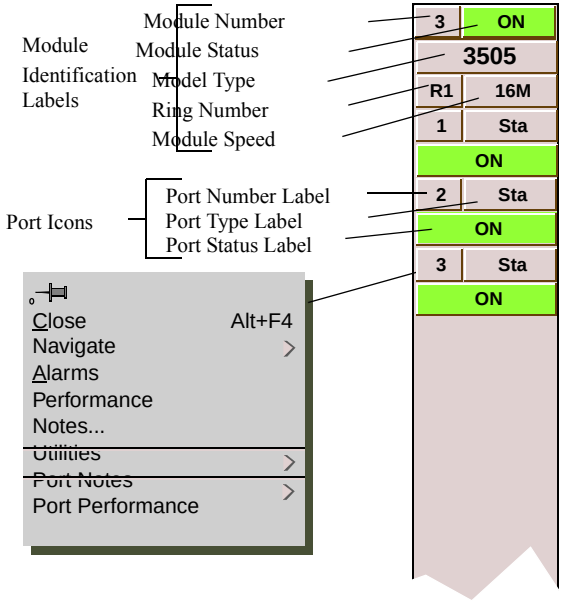
Table 7: Ethernet Port Menu Selections

Menu Selection	Description
Port Notes	Opens the Port Notes view.
Port Performance	Opens the Port Performance view described in the ***SPECTRUM Views*** documentation.

Token Ring Module Icon

This icon is a logical representation of the physical module. It shows the location in the hub chassis and its front panel interfaces and ports. Figure 3 shows an example of a Token Ring Module icon.

Figure 3: Token Ring Module Icon



Module Identification Labels

These labels provide the following information:

Module Number

Identifies the slot number of the module in the hub. Double-click this label to access the Module Notes.

Model Type

Identifies the model type for this device.

Module Status

Identifies the operating status of the module. Double-click this label to access the Module Performance view described in the ***SPECTRUM Views*** documentation.

Ring Number

Identifies which ring this module is on.

Module Speed

Identifies the transmission speed setting of the module.

Module Icon Subviews Menu Selections

Table 8 lists each of the device-specific Icon Subviews menu selections available for this device.

Table 8: Module Icon Subviews Menu

Menu Selection	Description
Module Notes	Opens the *Module Notes* view which allows you to keep notes specific to this module.
Module Port Table	Opens the *Port Table* view.
Module Token Ring Configuration	Opens the SynOptics Module Token Ring Module Configuration view described in *Configuration Views* (Page 23).
Module Configuration	Opens the SynOptics Module Configuration view described in *Configuration Views* (Page 23).
Module Performance	Opens the Performance view described in the ***SPECTRUM Views*** documentation.

Port Icons

Port icons display the following information for each port on the device:

Port Number Label

Identifies the port on this device. Double-click this label to access the Port Notes view.

Port Type Label

Identifies the type of port on this device. Possible types are Station (`Sta`) or Ring In/Ring Out (`Ring`). Double-click this label to access the *Token Ring Configuration* (Page 33).

Port Status Label

Displays the operating status of this port. Double-click this label to access the Port Performance view described in the ***SPECTRUM Views*** documentation. Port status conditions are as follows:

- `ON` - Green
- `WRAP` - Red
- `BYP` (Bypassed) - Yellow

Port Icon Subviews Menu Selections

Table 9 lists each of the port-specific Icon Subviews menu selections available for this device.

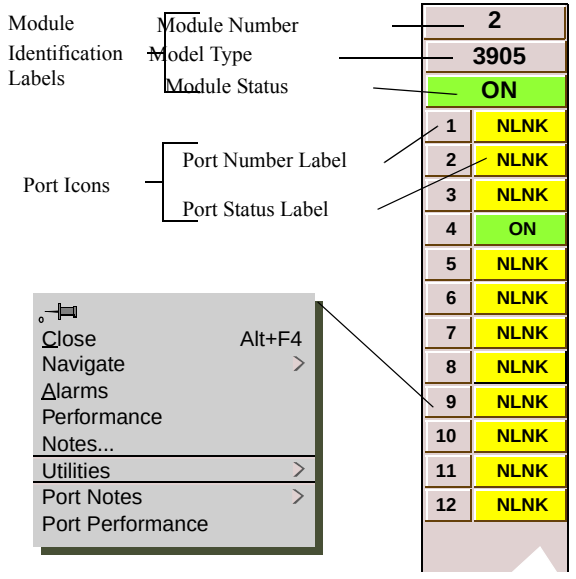
Table 9: Token Ring Port Menu Selections

Menu Selection	Description
Port Notes	Opens the Port Notes View.
Port Configuration	Opens the SynOptics Token Ring Port Configuration view described in *Configuration Views* (Page 23).
Port Performance	Opens the SynOptics Token Ring Port Performance view described in the ***SPECTRUM Views*** documentation.

FDDI Module Icon

This icon is a logical representation of the physical module. It shows the location in the hub chassis and its front panel interfaces and ports. Figure 4 shows an example of an FDDI Module icon.

Figure 4: FDDI Module Icon



Module Identification Labels

These labels provide the following information:

Module Number

Identifies the number of the module in the hub. Double-click this label to access the Module Notes.

Module Type
Identifies the type of module that occupies this slot in the hub. Double-click this label to access the Model Information view described in the ***SPECTRUM Views*** documentation.

Module Status
Identifies the status of the module. Double-click this label to access the performance view. Performance views are described in the ***SPECTRUM Views*** documentation. Module status conditions are defined as follows:

- ON - Green
- PAR (Partitioned) - Yellow

Module Icon Subviews Menu Selections

Table 10 lists each of the device-specific Icon Subviews menu selections available for this device.

Table 10: Module Icon Subviews Menu

Menu Selection	Description
Module Notes	Opens the Module Notes view which allows you to keep notes specific to this module.
Module Port Table	Opens the Port Table view.
Module Configuration	Opens the Ethernet Configuration view described in *Configuration Views* (Page 23).
Module Performance	Opens the Performance view described in the ***SPECTRUM Views*** documentation.

Port Icon

Port icons display the following information for each port on the device:

Port Type Label
Identifies which port this icon represents. Double-click this label to access the Port Notes view.

Port Status Label

Displays the status of the port. Double-click this label to open the Port Performance view. Port status conditions are defined as follows:

- NLNK (No Link) - Yellow
- ON - Green
- OFF - Blue

Port Icon Subviews Menu Selections

Table 11 lists each of the port-specific Icon Subviews menu selections available for this device.

Table 11: FDDI Port Menu Selections

Menu Selection	Description
Port Notes	Opens the Port Notes view.
Port Profile	Opens the FDDI Port Profile view.
Port Configuration	Opens the FDDI Port Configuration view.
Port Parameters	Opens the FDDI Port Parameters view.
Port LER Threshold	Opens the FDDI Port LER Threshold view.

Physical Device View

The SynOptics hub Physical Device view shows a physical representation of the hub and the modules installed within it. Figure 5 shows an example of a Physical Device view.

The Physical Device view allows you to access the same Icon Subviews menus for modules installed in the SynOptics hub as the Logical view.

Click on a module icon within the view to highlight it. From the View menu, select **Icon Subviews**.

Figure 5: **Physical Device View**

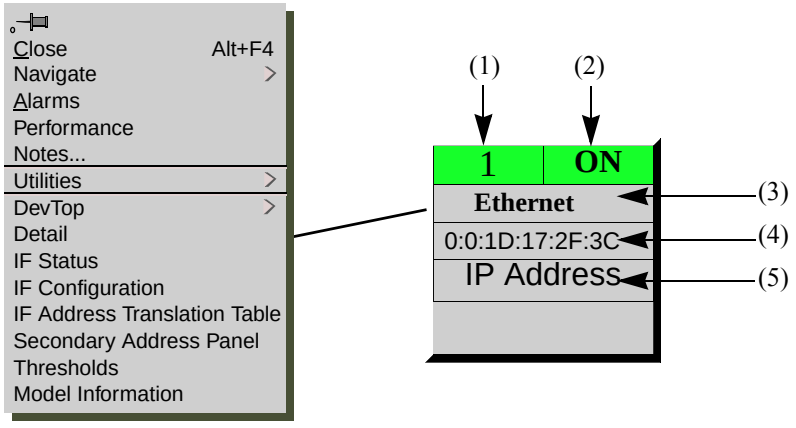
Bridge Device View

The SynOptics 332xS Bridge Device view provides dynamic configuration and performance information for the bridge interface. If the configuration changes, SPECTRUM modifies the Device view after the next polling cycle to reflect the new configuration.

Bridge Interface Icon

This icon represents the Bridge interface for the BdgSyn332xS model type. It identifies the type of interface or port and provides statistical information. Figure 6 (Page 21) provides an example of the Bridge Interface icon, its Icon Subviews menu, and its labels/double-click zones.

Figure 6: Interface Icon



1 Device Topology View

2 *Administrative Status Label*/Interface Status View

3 *Port Type Label*/Interface Configuration View

4 *MAC Address Label*

5 IP Address Label/Secondary Address Panel

Interface Number Label

This label displays the number identifying the interface. Double-click on this label to access the Bridge Device Topology (DevTop) view described in the ***SPECTRUM Views*** documentation.

Administrative Status Label

This label displays the status of this interface. Double-click this label to open the Interface Status View.

Table 12 and Table 13 list the possible states relative to the application selected. The default application for this view is Physical (MIB-II).

Table 12: Administrative Status for the Physical Application

Color	Status	Description
Green	ON	Port is operational.
Blue	OFF	Port is off.
Yellow	TST	Port is in the test mode.

Table 13: Administrative Status for the Bridging Application

Color	Status	Description
Green	FWD	Bridge port is forwarding.
Blue	DIS	Port is disabled.
Magenta	LST	Bridge is in the listening mode.
Magenta	LRN	Bridge is in the learning mode.
Orange	BLK	Bridge port is in the blocking mode.
Red	BRK	Bridge port is broken.
Blue	???	Status is unknown.

Port Type Label

This label displays the type of hardware interface or port; for example, Reg1822, Prot10MB, PPP, T1, etc. For a complete listing of all interface types, refer to the ***SPECTRUM Views*** documentation.

MAC Address Label

This label displays the MAC or physical address of the interface.

Secondary Address Panel

This label displays user-selectable network information (Address, Name, or Mask). The default is Address.

To change this label's display, do the following:

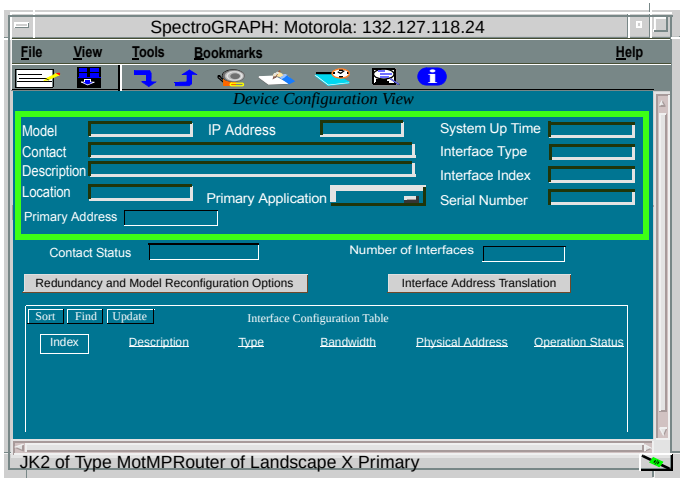
1. Double-click the label to open the Network Information Panel.
2. Click the network information entry you wish to display.
3. Click **OK**.

Configuration Views

This section describes the various Configuration views available for models of SynOptics 3000 devices in SPECTRUM.

Configuration views allow you to view and modify current settings for the modeled device and its interfaces, ports, and applications. Figure 7 is an example of a Device Configuration View.

Figure 7: Device Configuration View



The following Configuration views are available for models of SynOptics 3000 devices:

NMM Nodes

- *SynOptics Token Ring Show Nodes Table View* (Page 25)
- *SynOptics Token Ring Find Nodes Table View* (Page 26)

Ethernet Configuration

- *SynOptics Ethernet Frames and Errors View* (Page 27)
- *SynOptics Ethernet Frame Sizes and Protocols View* (Page 28)
- *SynOptics Ethernet NMM Table View* (Page 28)
- *SynOptics Ethernet Host Table View* (Page 28)
- *SynOptics Ethernet Threshold Table View* (Page 29)

Token Ring Configuration

- *SynOptics Token Ring Station Table View* (Page 33)
- *SynOptics Token Ring Total Errors Table View* (Page 34)
- *SynOptics Token Ring Station Isolating Errors View* (Page 35)
- *SynOptics Token Ring Station Non-Isolating Errors View* (Page 35)
- *SynOptics Token Ring NMM Topology Table View* (Page 36)
- *SynOptics Token Ring NMM Configuration View* (Page 36)

FDDI Configuration

- *SynOptics FDDI NMM Ring Status View* (Page 38)
- *SynOptics FDDI NMM Station Worst Errors View* (Page 38)
- *SynOptics FDDI NMM SRF Event Counters View* (Page 39)
- *SynOptics FDDI NMM SRF Condition View* (Page 39)
- *SynOptics FDDI NMM Ring Topology View* (Page 40)
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Device Configuration

- *SynOptics Configuration View* (Page 44)
- *SynOptics Agent Download View* (Page 45)
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- *SynOptics Agent Configuration View* (Page 48)
- *SynOptics Agent Hardware View* (Page 49)
- *SynOptics IP Trap Receiver View* (Page 51)
- *SynOptics IPX Trap Receiver View* (Page 51)
- *SynOptics Chassis Configuration View* (Page 52)
- *SynOptics Ethernet Local Bridge Configuration View* (Page 55)

NMM Nodes

Access: *From the* ***Icon Subviews*** *menu for the device, select* ***NMM Nodes*** *and then one of the following menu/view selections:*

This menu selection from the device icon provides access to the following NMM nodes views.

- **Show Nodes**/*SynOptics Token Ring Show Nodes Table View*
- **Find Nodes**/*SynOptics Token Ring Find Nodes Table View* (Page 26)

SynOptics Token Ring Show Nodes Table View

Access: *From the NMM Nodes menu for the device icon, select* ***Show Nodes.***

This table contains a list of all of the active nodes that are currently connected to the ring through this concentrator.

Module
The board number.

Port
The port number.

Address
The physical MAC address.

Vendor
The vendor of the device connected to that port. This is determined from the MAC address.

SynOptics Token Ring Find Nodes Table View

Access: *From the **NMM Nodes** menu for the device icon, select **Find Nodes**.*

This table contains a list of all of the active nodes that are currently connected to the ring through this concentrator. The Show Nodes and Find Nodes tables differ in their indexing. The Find Nodes table identifies a module and port for a given NMM's interface and a given MAC address.

Module
The module number.

Port
The port number.

Address
The physical (MAC) address.

Vendor
The vendor of the device connected to that port. This is determined from the MAC address.

Ethernet Configuration

Access: *From the **Icon Subviews** menu for the device, select **Ethernet Configuration.***

This menu selection provides access to the following views. These views contain network configuration information for the SynOptics Model 3000 Series Ethernet hub device.

- **Frames and Errors**/*SynOptics Ethernet Frame Sizes and Protocols View* (Page 28)
- **Frames and Protocols**/*SynOptics Ethernet Frame Sizes and Protocols View* (Page 28)
- **NMM Table**/*SynOptics Ethernet NMM Table View* (Page 28)
- **Host Table**/*SynOptics Ethernet Host Table View* (Page 28)
- **Threshold**/*SynOptics Ethernet Threshold Table View* (Page 29)

SynOptics Ethernet Frames and Errors View

Access: *From the **Icon Subviews** menu for Ethernet Configuration, select **Frames and Errors**.*

This view displays pie chart statistics for frames and error breakdowns. For information on pie charts refer to the ***SPECTRUM Views*** documentation. This view also displays the following information:

Board
A unique value for each board.

Port
The media connection type for this port.

Link
Whether the port is receiving link status.

Intercon
Whether the port is connected to a host or to an interconnect.

Part Status
The operational status of the port. Possible values are: `enabled, partition, autopartition, timedpartition, latSecPartition.`

Good Frames
The number of good frames.

Alignment
A count of frames received by the concentrator that are not an integral number of octets in length and do not pass the FCS check.

FCS
A count of frames received by the concentrator that are an integral number of octets in length that do not pass the FCS check.

Runts
A count of frames received by the concentrator that are less than the minimum permitted frame size and have a good FCS.

Giants
The number of giants.

OOW
The number of OOWs.

Collisions
A total count of the late collisions.

SynOptics Ethernet Frame Sizes and Protocols View

Access: *From the **Icon Subviews** menu for Ethernet Configuration, select **Frames and Protocols.***

This view displays pie chart statistics for frames and protocols. For information on pie charts refer to the ***SPECTRUM Views*** documentation.

SynOptics Ethernet NMM Table View

Access: *From the **Icon Subviews** menu for Ethernet Configuration, select **NMM Table**.*

The SynOptics Ethernet NMM Table view provides a list of all the active MAC addresses that are currently connected to a specified segment identified by an interface on an NMM, and are directly connected to a host port on the chassis or are a MAC on a board in the chassis. The NMM Table view provides the following information:

Module
The module number.

Port
The port number.

Address
The physical (MAC) address.

Vendor
The vendor of the device connected to that port. This is determined from the MAC address.

SynOptics Ethernet Host Table View

Access: *From the **Icon Subviews** menu for Ethernet Configuration, select **Host Table.***

This view displays the following information:

Slot
The board index that the host is connected through.

Port
The port index that the host is connected through.

Type
The type of address that is stored in the Net Addr for this device.

Net Addr
The network address (in network order) of the MAC/Network address pair.

MAC Address
The network address (in canonical order) of the MAC/Network address pair.

Vendor
The vendor of the device connected to that port. This is determined from the MAC address.

Learn
The method that was used to discover the MAC/Network address pair. Possible methods are:

- `Other` - unknown method
- `arpRequest` - ARP request packets
- `arpResponse` - ARP response packets
- `ripRequest` - RIP request packets
- `ripResponse` - RIP response packets

Time Stamp
The value of sysUpTime when the MAC/Network address pair was last observed on the segment.

SynOptics Ethernet Threshold Table View

Access: *From the **Icon Subviews** menu for Ethernet Configuration, select **Threshold Table.***

The Thresholds Table View provides the following information:

Index
The index into the Threshold table.

Object
Specifies the part of the concentrator the threshold applies. Possible values are:

- `Other`- Unknown threshold error.
- `Port`- Applies to a specific port in the concentrator.
- `Ring`- Applies to the ring to which the NMM is connected.
- `Station`- Applies to a specific station identified by the MAC address.

Note: All values are read write- with the exception of “other” which is read-only. **Other** indicates the entry has an invalid or unknown threshold type.

Slot
Displays the slot number of the port being monitored by the threshold.

Port
Displays the port number of the port being monitored by the threshold.

Type
Determines which type of threshold applies to this entry. The possible values are:

- Applicable to the Ring and Station thresholds only:
  - `lineError`- Count of line errors.
  - `burstError`- Count of burst errors.
  - `arcFciError`- Count of ARI FCI errors.
  - `recvCongestionErr`- Count of receive congestion errors.
  - `frameCopyError`- Count of frame copy errors.
  - `tokenError`- Count of token errors.
  - `lostFrame`- Count of lost frame errors.
  - `beaconing`- Count of beacon frames.
- Applicable to Ring thresholds only:
  - `goodOctets`- Count of good bytes.
  - `goodFrames`- Count of good frames.
  - `utilization`- Total byte count of all good and bad frames seen per second, divided by the ring speed in bytes per second.
- Applicable to Station thresholds only:
  - `stationInserts`- Station inserted into the NMM's ring.
  - `stationDeinserts`- Station deinserted from the NMM's ring.

Applicable to the Port thresholds only:

- `portPhantomStatus`- Phantom signal has changed from off to on or vice versa.

Condition
Conditions that set off the threshold. The possible values appear in Table 14, below.

Table 14: Possible Threshold Conditions

Value	Description
other	None of the following
crossValue	The actual value crosses the set value (i.e., either from lower to higher or higher to lower).
overValue	The actual value/sec is greater than the set value/sec.
overRate	The rate of the Actual/second is greater than the Set Value/second.
phantomOn	The phantom signal of the port has changed to On.
phantomOff	The phantom signal of the port has changed to Off.

The values the threshold Condition can have are actually dependent on the value of the threshold Type. Table 15 shows the valid combinations between the two objects.

Table 15: Threshold Condition Combinations

Threshold Type	Allowed Values for Threshold Condition
lineError (2)	Possible values are 2,3, or 4.
burstError (3)	Possible values are 2,3, or 4.
arcFciError (4)	Possible values are 2,3, or 4.
recvCongestionErr (5)	Possible values are 2,3, or 4.
frameCopyError (6)	Possible values are 2,3, or 4.
tokenError	Possible values are 2,3, or 4.
lostFrame (8)	Possible values are 2,3, or 4.
beaconing (9)	Possible values are 2,3, or 4.
goodOctets (10)	Possible values are 2,3, or 4.
goodFrames (11)	Possible values are 2,3, or 4.
utilization (12)	Possible values are 2 or 3.
stationInserts (13)	Any value is possible.
stationDeinserts (14)	Any value is possible.
portPhantomStatus (15)	Possible values are 5 or 6.

When the condition specified is **crossValue** or **overValue**, the Actual value is accumulated from the beginning of the duration window and is checked every five seconds.

When the condition specified is **overRate** and the duration is less than or equal to five seconds, the Actual value is based on the data accumulated during the five second sampling period.

When the condition specified is **overRate** and the duration is greater than five seconds, the Actual value is based on the data accumulated during the entire duration window.

Set Value

Threshold setting value. This value must be set to a number greater than zero for the following types of thresholds:

- lineError
- burstError
- arcFciError
- recvCongestionErr
- frameCopyError
- tokenError
- lostFrame
- beaconing
- goodOctets
- goodFrames

- utilization

Actual Value
Current value of the threshold counter. This value is set to zero at the beginning of each duration window.

Note: If the type of threshold is station, and the station is not on the same ring as the NMM, this value will remain at zero, which will prevent the threshold condition from ever being met. This object is not used for evaluating the threshold condition, and will remain at zero if the type of threshold is port.

Action
Determines which action is to take place if the threshold condition occurs. The possible values that can be read and written are listed below for each threshold type:

- Port, Ring, and Station thresholds:
  - `noAction`- Take no action.
  - `sendTrap`- Send a trap.
- Port thresholds only:
  - `partSlotPort`- Partition the port identified by the threshold **Slot** entry and the threshold **Port** entry.
  - `trapPartSlotPort`- Send a trap and partition the port identified by the threshold **Slot** entry and the threshold **Port** entry.
- Station thresholds only:
  - `removeMAC`- Send remove MAC frame to station identified by MAC address contained in the threshold MAC Address.
  - **trapRemoveMAC**- Send a trap and then send a Remove MAC frame to the station identified by the MAC address contained in the threshold MAC Address.

Exceed Count
Counter for how many times the settled threshold has reached its setting value.

Add Threshold

The Add Threshold buttons allow you to add or change information to the ring, station, or port as follows:

1. Click the applicable button.
2. Within the view that opens, make any changes to, or add new thresholds as needed.
3. From the File Menu, **Save Changes**.

The Ring and Station views display the following additional information:

Token Ring Configuration

Access: *From the Icon Subviews menu for the device menu, select* ***Token Ring Configuration.***

This menu selection provides access to the following views. These views contain network configuration information for the SynOptics Model 3000 Series Token Ring hub device.

- **Station Table**/*SynOptics Token Ring Station Table View*
- **Station Total Errors**/*SynOptics Token Ring Total Errors Table View* (Page 34)
- **Station Non-Isolating Errors**/*SynOptics Token Ring Station Non-Isolating Errors View* (Page 35)
- **NMM Topology Table**/*SynOptics Token Ring NMM Topology Table View* (Page 36)
- **TR NMM Configuration**/*SynOptics Token Ring NMM Configuration View* (Page 36)
- **Threshold**/*SynOptics Ethernet Threshold Table View* (Page 29)

SynOptics Token Ring Station Table View

Access: *From the* ***Icon Subviews*** *menu for the Token Ring Configuration, select* ***Station Table****.*

This view displays pie chart statistics for isolating and non-isolating. For information on pie charts refer to the ***SPECTRUM Views*** documentation. This view also displays the following information:

MAC Address
The MAC address of the station.

Slot
The board index that the host is connected through.

Port
The number identifying the port.

Beacon Status
The beaconing status of the station.

Functional Addr
The functional address used by the station (this value may or may not be the station's MAC address).

Classes
Specifies the functional classes allowed to be active in the station.

Priority
The maximum priority the station is allowed to use.

Group Address
The group address of the station.

Station ID
An octet string used to uniquely identify the station.

SynOptics Token Ring Total Errors Table View

Access: *From the **Icon Subviews** menu for the Token Ring Configuration, select **Station Total Errors**.*

This view displays pie chart statistics for isolating and non-isolating errors. For information on pie charts refer to the ***SPECTRUM Views*** documentation. This view also displays the following information:

MAC Address
The MAC address of the station.

Line
The number of line errors.

Burst
The number of burst errors.

Ar
The number of ARI FCI errors.

Abort
The number of abort delimiter errors.

Internal
The number of internal errors.

Lost Frm
The number of lost frames.

Congestion
The number of receive congestion errors.

Frm Copy
The number of frame copy errors.

Token
The number of token errors.

Frequency
The number of frequency errors.

SynOptics Token Ring Station Isolating Errors View

Access: *From the **Icon Subviews** menu for the Token Ring Configuration, select **Station Isolation Errors.***

This view displays pie chart statistics for isolating and non-isolating errors. For information on pie charts refer to the ***SPECTRUM Views*** documentation. This view also displays the following information:

MAC Address
The MAC address of the station.

Slot
The board index that the host is connected through.

Port
The number identifying the port.

Line
The number of line errors.

Burst
The number of burst errors.

Ar
The number of ARI FCI errors.

Abort
The number of abort delimiter errors.

Internal
The number of internal errors.

SynOptics Token Ring Station Non-Isolating Errors View

Access: *From the **Icon Subviews** menu for the Token Ring Configuration, select **Station Non-Isolating Errors.***

This view displays pie chart statistics for isolating and non-isolating errors. For information on pie charts refer to the ***SPECTRUM Views*** documentation. This view also displays the following information:

MAC Address
The MAC address of the station.

Slot
The board index that the host is connected through.

Port
The number identifying the port.

Lost Frm
The number of lost frames.

Congestion
The number of receive congestion errors.

Frm Copy
The number of frame copy errors.

Token
The number of token errors.

Frequency
The number of frequency errors.

SynOptics Token Ring NMM Topology Table View

Access: *From the **Icon Subviews** for the Token Ring Configuration, select **NMM Topology Table**.*

This view provides a list of all the active MAC addresses that are currently connected to a specified segment identified by an interface on an NMM, and are directly connected to a host port on the chassis or are a MAC on a board in the chassis. The NMM Table view provides the following information:

Module
The module number.

Address
The physical (MAC) address.

Vendor
The vendor of the device connected to that port. This is determined from the MAC address.

SynOptics Token Ring NMM Configuration View

Access: *From the **Icon Subviews** menu for the Token Ring Configuration, select **TR NMM Configuration**.*

This view provides the following configuration information for this device:

Module
The number of the slot containing the module.

Network
You may enter the flat network number that this NMM is part of.

Segment
The segment number (in the concept of Token Ring the segment means the ring) that this NMM is connected to.

Ring Status
The status of the ring.

Ring
The identifying number of the ring.

Ring Speed
The speed at which the hub is configured to operate.

FPU Revision
The revision number of the front end processing unit.

FPU Status
The status of the front end processing unit.

DRAM Size
The highest address of DRAM in the NMM memory map.

EEPROM Size
The size of the EEPROM in the NMM memory map.

EPROM Size
The size of the EPROM in the NMM memory map.

FDDI Configuration

Access: *From the **Icon Subviews** menu for the Device Icon, select **FDDI Configuration.***

This menu selection provides access to the following views. These views contain network configuration information for the SynOptics Model 3000 Series FDDI hub device. To access these views, select **FDDI Configuration** from the Icon Subviews menu for the device and then one of the following menu/view selections.

- *SynOptics FDDI NMM Ring Status View* (Page 38)
- *SynOptics FDDI NMM Station Worst Errors View* (Page 38)
- *SynOptics FDDI NMM SRF Event Counters View* (Page 39)
- *SynOptics FDDI NMM SRF Condition View* (Page 39)
- *SynOptics FDDI NMM Ring Topology View* (Page 40)
- *SynOptics Physical Topology Trunk View* (Page 42)
- *SynOptics Physical Topology Node View* (Page 43)
- *SynOptics NMM Optical Bypass Switch View* (Page 43)

SynOptics FDDI NMM Ring Status View

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **NMM Ring Status.***

This view provides the following NMM Ring information:

Ring
The index associated with this ring.

Utilization
The ring utilization calculated using the MAC token count and ring latency on that path.

Wrap State
Indicates if the ring is wrapped.

State Duration
How long the ring has been in the above condition (wrapped or unwrapped).

SynOptics FDDI NMM Station Worst Errors View

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **Station Worst Errors**.*

This view provides LAN statistics information for the whole LAN. It provides information about each station's worst error rates on MACs and ports. It is indexed by station.

Worst Error Monitor Operational State
The operational state of the agent worst error monitor process.

Station ID
Station ID of the station with the worst LER errors and Frame errors.

Port w/Worst LER
The port on this station with the worst rate of LER errors.

LER Estimate
The worst **LER** estimate (Long term average link Error Rate) on the above port.

MAC w/Worst Frame Error Rate
The MAC on this station with the worst rate of frame errors.

MAC Ratio
The worst ratio of frame errors on the above MAC. This value will be between 0 and 65535.

SynOptics FDDI NMM SRF Event Counters View

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **SRF Event Counters.***

This view provides LAN statistics information for the whole LAN. It provides information about each station's conditions, events, and worst error rates on MACs and ports. It is indexed by station.

SRF Monitor Operational State
Indicates the operating status of this station (`On` or `Off`).

Station ID
Station ID of the station with the indicated conditions and events.

MAC Neighbor Changes
Number of times this station sees a MAC neighbor change.

MAC Path Changes
Number of times this station sees a path change on one of its MACs.

Port Undesired Connects
The number of times an undesired connection is attempted on this port.

Port Path Changes
The number of times this port changes path.

SynOptics FDDI NMM SRF Condition View

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **Station SRF Condition.***

This view provides the following SRF condition information:

SRF Monitor Operational State
Indicates the operating status of this station (`On` or `Off`).

Station ID
Station ID of the station with the indicated conditions and events.

Peer Wrap State
Flag indicating if an SMT peer wrap condition has occurred.

MAC Dup Address
Flag indicating if a MAC address condition has been detected.

MAC Frame Err
Flag indicating if a MAC frame error condition has occurred.

MAC Not Copied
Flag indicating if a MAC not copied condition has occurred.

Port LER
Flag indicating if a Port Link Error condition has occurred.

Port EBE
Flag indicating if a port elastic buffer error condition has occurred.

SynOptics FDDI NMM Ring Topology View

Access: *From the **Icon Subviews** for the FDDI Configuration, select **NMM Ring Topology View**.*

This view provides the following NMM Ring Topology information:

Interface IP
The IP address of the interface. This refers to the interface of the pulling NMM.

Network #
A unique value for each network. This is the network number where the pulled NMM resides.

IP Address
IP Address of this NMM entry. This refers to the NMM being pulled.

Chassis Type
The type of the chassis where this NMM resides. The enumerated values of this object are the same as defined in the common MIM for objects 3Chassis Type.

MAC Address
The MAC address this entry is for.

Backplane Type
The backplane type of the chassis of this NMM.

Upstream Neighbor
IP address of the upstream neighbor of the station associated with this entry. If unknown, then this object will contain 0.0.0.0.

SynOptics FDDI Port Configuration

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **Port Configuration.***

SMT Index
A unique value for each SMT.

Port Index
The identifier number of the port.

Hardware Present
Indicates the presence of underlying hardware support for this hardware.

Connect State
The state of the connection.

PCM State
Port Configuration State.

PC Type
The type of port configuration.

SynOptics FDDI Port Parameters View

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **Port Parameters.***

SMT Index
The value of the SMT index associated with this port.

Port Index
A unique value for each port within a given SMT. The value for each port must remain constant at least from one re-initialization of the entity's network management system to the next re-initialization.

Available Paths
A group of read-only indicator buttons that indicate the path types available for the station. Possible value are: `primary, secondary`, and `local`.

Set Requested Paths
This allows you to set requested paths.

Requested Paths
The path that has been requested.

SynOptics FDDI Port LER Thresholds View

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **Port LER Thresholds.***

SMT Index
The value of the SMT index associated with this port.

Port Index
A unique value for each port within a given SMT.

LEM Reject Count
A link error monitoring count of the times that a link has been rejected.

LEM Error Count
The aggregate link error monitoring count set to zero only on station initialization.

LCT Failure Count
The count of the consecutive times the Link Confidence Test (LCT) has failed during connection management.

LER Cutoff
The Link Error Rate estimate at which a link connection will be broken.

LER Alarm
The link error rate estimate at which a link connection will generate an alarm.It ranges from 10**-4 to 10**-15 and is reported as the absolute value of the base 10 logarithm of the estimate. The default is 8.

LER Estimate
A long term average link error rate. It ranges from 10**-4 to 10**-15 and is reported as the absolute value of the base 10 algorithm.

LER Condition
The LER condition.

SynOptics Physical Topology Trunk View

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **Physical Topology Trunk.***

This view provides the following information on all of the stations in the trunk ring:

Physical Topology Operational State
Displays whether the node is `On` or `Off`.

Station ID
Station ID of the node associated with this entry.

IP Address
IP address of the node associated with this entry.

Station State
Used to determine the current state of the node.

Station Type
Station type of this node.

Station Type Mask
Station Type Mask root node on trunk ring.

Slot
SynOptics slot number where the local NMM A/B/S ports reside.

SynOptics Physical Topology Node View

Access: *From the **Icon Subviews** menu for the FDDI Configuration, select **Topology Node.***

This view provides the following information for all stations in the trunk ring.

Physical Topology Operational State
Indicates whether the node is `On` or `Off`.

Station ID
The Station ID of the node associated with this entry.

IP Address
The IP address of the node associated with this entry.

Station Type Mask
Station Type Mask for this node.

Num Parents
Contains the number of parent stations of this concentrator/station.

Parent Cloud Mask
Bit mask indicating if any of the parents is a cloud.

Num Children
Contains the number of parent stations of this child concentrator or station (a maximum of 100 ports for FDDI Phase II.)

SynOptics NMM Optical Bypass Switch View

Access: *From the **Icon Subviews** menu for FDDI Configuration, select **Optical Bypass Switch.***

This view displays the following information used to control the Optical Bypass Switch:

SMT Index
The value of the SMT index associated with this attachment.

Optical Bypass Switch Index
A unique value for each optical bypass switch.

Partition Status
Optical bypass switch partition status.

Partition Timer
Optical Bypass Switch partition timer. When this object is set to default (0), the concentrator can be removed permanently from the trunk ring by setting the object s3FDDIAttachPartitionStatus to `on/partitioned` (1).

Bypass Present
Indicates whether an optical bypass switch is inserted.

Device Configuration

Access: *From the **Icon Subviews** menu for the Device Icon, select **Device Configuration**.*

This menu selection provides access to the following views. These views contain network configuration information for the SynOptics Model 3000 Series hub device.

- **Configuration View**/*SynOptics Configuration View*
- **Agent Download**/*SynOptics Agent Download View*
- **Agent Protocol**/*SynOptics Agent Protocol Configuration View* (Page 47)
- **Agent Configuration**/*SynOptics Agent Configuration View* (Page 48)
- **Agent Hardware**/*SynOptics Agent Hardware View* (Page 49)
- **IP Trap Receivers**/*SynOptics IP Trap Receiver View* (Page 51)
- **IPX Trap Receivers**/*SynOptics IPX Trap Receiver View* (Page 51)

SynOptics Configuration View

Access: *From the **Icon Subviews** for the Device Configuration, select **Configuration View.***

This view provides the following information:

Flash Status
The operational status of the flash device of the agent. A Fail indicates that either the flash device configuration on board is not valid or the flash electrically erasable programmable read only memory (EEPROM) on the board has failed. Options are `Fail, OK,` or `Other.`

Agent CPU Idle Time
The count of the idle time of the agent in ***days+hours:minutes:seconds***.

Unauthorized IP Address
The IP address of the last station that tried to access this agent with an invalid community string.

Unauthorized Community Name
The community string of the last unauthenticated attempt to access this agent.

Unauthorized IPX Address
The IPX address of the last unauthenticated attempt to access this agent.

SynOptics Agent Download View

Access: *From the **Icon Subviews** menu for the Device Configuration, select **Agent Download.***

The SynOptics Agent Download view is divided into two major sections and provides the following information:

Current Information

Agent Status
Indicates the network management module online status.

Boot Protocol
Indicates the boot protocol used to load the module with its software.

Image Actual Source
Indicates whether the agent loaded code from the network or used a local image. When the Image Load Mode is Local_As_Backup, this variable indicates whether the network load was successful. Options are `Other, Remote_Image,` or `Local_Image.`

Agent Mode
Provides a button that allows you to modify the module mode. You may select `Primary, Secondary`, or `Other.`

Local Image Status
Indicates whether the agent has a valid local code image on board. An EPROM checksum failure would cause the agent to return Invalid. This may display as `Other, Valid,` or `Invalid`.

Agent Configuration Actual Source
Indicates whether the agent loaded configuration data from the network or used the local configuration data.

Next Boot

Image Load Mode
Provides a button that allows you to indicate whether the agent should get configuration data from the network (Remote_Boot), use the local configuration data (Local_Image), or try the network first and then fall back to local configuration if the network load fails (Local_As_Backup). This object applies only to agents with boot prom support for agent configuration load options. This parameter will not take effect until written into EEPROM and a reset is issued.

Boot Mode
Provides a button that allows you to select the boot mode. You may select from `BOOTP` or `EEPROM`.

Boot File
Allows entry of the name of the boot file that is sent to the file server during boot time.

Agent Configuration Source
Provides a button that allows you to select whether the agent should get configuration data from the network (Remote_Config), use the local configuration data (Local_Config), or try the network first and then fall back to local configuration if the network load fails (Local_As_Backup). This object applies only to agents with boot prom support for agent configuration load options. This parameter will not take effect until written into EEPROM and a reset is issued.

Boot Server IP Address
Allows entry of the IP address to which the requests for boot files are sent.

Boot Router IP Address
Allows entry of the default router IP address used at boot time to download the NMM's agent configuration and image files from the TFTP server. This parameter will not survive a reset unless it is written into EEPROM.

Restart
Provides a button that allows you to restart the agent status. You may select `Not_Restarting` or `Restarting`. Writing a restart to this object restarts the NMM. This initializes all the counters, re-reads the EEPROM data structure and starts executing from the beginning of the code.

Reset
Provides a button that allows you to reset the agent status. You may select `Not_Resetting` or `Resetting`. Selecting `Resetting` resets the NMM and performs a download and restart.

Caution: Updating the Reset or Restart field restarts the hub and causes momentary network interruption.

Write Configuration Settings to NVRAM
Provides a button that allows you to write the configuration settings to NVRAM. You may select `Not_Writing` or `Writing`.

SynOptics Agent Protocol Configuration View

Access: *From the **Icon Subviews** for Device Configuration, select **Agent Protocol**.*

The SynOptics Agent Protocol view provides the following information:

Agent Status
The network management module online status.

Agent Mode
Provides a button that allows you to modify the module mode. You may select `Primary`, `Secondary`, or `Other`.

IP Address
Allows entry of the Agent's administrative IP address.

Network Mask
Allows entry of the Agent's administrative subnet mask.

IPX Address
Allows entry of the Agent's administrative IPX address.

Ping Default Router Switch
Provides a button that allows you to control whether the agent periodically sends out the ICMP echos (pings) to the default router(s). You may select from `Other` (unknown or other), `On` (agent periodically sends out pings to the default router(s)), or `Off` (agent will not send out the pings to the default router(s)).

Ping Default Router Time
Allows entry of the time interval that the agent uses to send out the pings periodically to the default router(s) to check if the router(s) are still reachable.

Management Protocol Mode
Provides a button that allows you to indicate the network transports over which the agent accepts SNMP requests. This object only applies to agents with IP and IPX dual stack support. This parameter will not take effect until written into EEPROM and a reset or a restart is issued. You may select from `Other, IP, IPX`, or `IP_and_IPX`.

Actual Management Protocol Mode
Indicates the network transports over which the agent currently accepts SNMP requests.

Default Gateway
Allows entry of the Agent's administrative default gateway IP address.

Secondary Default Gateway
Allows entry of the agent's administrative secondary default gateway IP address. This default gateway's IP address is used when the primary default gateway is determined unreachable.

Authorization Trap
Provides a button that allows you to Enable or Disable the use of authentication error trap generation.

Reset
Provides a button that allows you to reset the agent status. You may select `Not_Resetting` or `Resetting`. Writing a reset to this object resets the NMM and performs a download and restart.

Restart
Provides a button that allows you to restart the agent status. You may select `Not_Restarting` or `Restarting`. Writing a restart to this object restarts the NMM. This initializes all the counters, re-reads the EEPROM data structure, and starts executing from the beginning of the code.

Write Configuration Settings to NVRAM
Provides a button that allows you to write the configuration settings to NVRAM. You may select `Not_Writing` or `Writing`.

SynOptics Agent Configuration View

Access: *From the **Icon Subviews** menu for the Device Configuration, select **Agent Configuration.***

The SynOptics Agent Configuration view provides the following configuration information:

Agent Status
Indicates the network management module online status.

Agent Mode
Provides a button that allows you to modify the module mode. You may select `Primary`, `Secondary`, or `Other`.

Module
Indicates the number of the hub slot that currently contains the agent.

Feature Level
The current feature level of the agent.

MIB Level
Indicates the current MIB release supported by the agent.

Software License Code
The software license code assigned to this agent. This code is required for initializing the agent.

Firmware Version
Indicates the agent's module firmware.

Software Major Version
The agent's major module software version number.

Minor Version
The agent's minor module software version number.

Maintenance Version
The agent's maintenance module software version number.

Local Image Status
Indicates whether the agent has a valid local code image on board. An EPROM checksum (see description of this term in the NOTE below) failure would cause the agent to return Invalid. This may display as `Other`, `Valid`, or `Invalid`.

Note: A checksum is a CRC algorithm which determines the validity of files. An EPROM checksum indicates whether the agent has a valid local code image.

Local Image Major Version
The major software version number of the locally-stored image.

Minor Version
The minor software version number of the locally-stored image.

Maintenance Version
The maintenance software version number of the locally-stored image.

SynOptics Agent Hardware View

Access: *From the **Icon Subviews** menu for the Device Configuration, select **Agent Hardware.***

The SynOptics Agent Hardware view provides the following information:

Agent Status
Indicates the network management module online status.

Agent Mode
Provides a button that allows you to modify the module mode. You may select `Primary`, `Secondary`, or `Other`.

Baud Rate
Allows entry of the module baud rate of the internal modem or RS-232 port.

Medium Dependent Adaptor Hardware Version
The module medium dependent adaptor (MDA) hardware version number.

Initial String
Allows entry of the string used to establish the out-of-band connection.

EPROM Size
The size of the EPROM of the agent, in bytes.

EEPROM Size
Indicates the size of the EEPROM of the agent, in bytes.

DRAM Size
Indicates the size of the DRAM of the agent, in bytes.

Hexadecimal Display
Provides the current 4 ASCII character display of the agent. Agents with no hex display hardware should return a zero length string.

Restart
Provides a button that allows you to restart the agent status. You may select Not_Restarting or Restarting. Writing a restart to this object will restart the NMM. This initializes all the counters, re-reads the EEPROM data structure, and starts executing from the beginning of the code.

Reset
Provides a button that allows you to reset the agent status. Selections are `Not_Resetting` or `Resetting`. Selecting `Resetting` will reset the NMM and perform a download and restart.

Caution: Updating the Reset or Restart field restarts the hub and causes momentary network interruption.

Write Configuration Settings to NVRAM
Provides a button that allows you to write the configuration settings to NVRAM. You may select `Not_Writing` or `Writing`.

SynOptics IP Trap Receiver View

Access: *From the **Icon Subviews** menu for the Device Configuration, select **IP Trap Receivers**.*

The SynOptics IP Trap Receiver view provides a table of NMSs that are to receive traps generated by this NMM. Double-click any entry to open the SynOptics IP Trap Receiver Table, which provides the same information (except that it contains no status field) in a modifiable format and allows you to delete an entry.

This view provides the following information:

Status
The action status for the entry. Setting to `Invalid` removes the entry from the table and disassociates the address identified with the entry.

Network Address
The IP address for trap server that is to receive the trap.

Community Name
The community string used for traps sent to this trap receiver.

Age Time
The time interval used to age entries out of the trap receiver table. The default value, if not specified, will be zero or infinite, never to be aged out.

Add IP Trap Receiver Table Entry

Opens the SynOptics IP Trap Receiver Add Entry view. This view allows you to enter the information in the IP Trap Receivers Table for an entry.

SynOptics IPX Trap Receiver View

Access: *From the **Icon Subviews** menu for the Device Configuration, select **IPX Trap Receivers.***

The SynOptics IPX Trap Receivers view provides a list of NMSs that are to receive traps generated by this NMM sent over IPX. Double-click any entry to open the SynOptics IPX Trap Receiver Entry view which provides the same information (except status) in a modifiable format and allows you to delete an entry.

This view provides the following information:

Status
Indicates the action status for the entry.

IPX Address
The IPX address for trap server that is to receive the trap. The value may only be written when the row is created. This is written in the format

`network:host`, with the network eight hexadecimal digits, and the host twelve hexadecimal digits.

Community Name
The community string used for traps sent to this trap receiver.

Age Time
Indicates the time interval used to age entries out of the trap receiver table. The default value, if not specified, will be 0 or infinite, never to be aged out.

Add IPX Trap Receiver Table Entry

Opens the SynOptics IPX Trap Receiver Add Entry view. This view allows you to enter the information in the IPX Trap Receivers Table for an entry.

SynOptics Chassis Configuration View

Access: *From the **Icon Subviews** menu for the Device Configuration, select **Chassis Configuration**.*

This view provides the following information about the chassis in addition to the Module Configuration Table described below.

Fan Status
The status of the hub cooling fan.

Power Status
The status of the hub power supply. This may display as `OK`, `PrimaryFail`, `SecondaryFail`, or `BothFail`.

Power Supply Type
The type of power supply.

Device Type
The chassis type.

Ethernet Channel Type
This will display as Segmentable for the 3000N, 3000NT, 3000S, 3000SR, and any other backplanes in which Ethernet channel A can be divided into multiple segments. The value `aNotSegmentable` indicates that the Ethernet backplane channel A cannot be segmented. For Token Ring or FDDI workgroup concentrators, or

other devices in which there is no Ethernet channel, the agent will return other.

Redundant Power Supply

Backplane Ethernet Channel Division

A value that describes the divisions of the segmentable ethernet channel. The value is a sum (i.e., integer bit string). This value initially takes the value of zero, then for each division that is enabled on the channel, 2 raised to a power is added to the sum. The powers are according to the following table:

- Division between Power
- Slots 4 and 5 0
- Slots 6 and 7 1
- Slots 8 and 9 2

For example, a channel with no divisions enabled (i.e., not segmented) would have a value of 0. A channel with divisions between slots 6 and 7, and slots 8 and 9 enabled (i.e., having three segments) would have a value of 6 ($2^1 + 2^2$).

Backplane Type

The type of backplane on the chassis.

Backplane Revision

The backplane revision for the hub. Clicking on this button opens the *SynOptics Redundant Power Supply View* (Page 55) view described later in this section.

Module Configuration Table

The SynOptics Chassis Configuration view also provides a Module Configuration Table. Double-clicking on an item in any column opens the **SynOptics Module Configuration view**, described later in this section. The Module Configuration Table provides the following information:

Module

The position of the module within the chassis.

Module Description

A description of the module, including the module type.

SynOptics Module Configuration View

Access: *Double-click on an entry in the* ***Module Configuration Table*** *in the* ***SynOptics Chassis Configuration view****.*

This view provides the following information:

Module Number

The number of the slot in the hub containing the module.

Module ID
The ID for the module. Values are specified in SynOptics technical documents.

Module Medium-Dependent ID
The ID of the medium-dependent part of the board. The value is board dependent. Values are specified in SynOptics technical documents.

Module Description
The model number and description of the module.

Board ID
The ID of the board, which is 'hard-coded' in the board, and identifies the board's basic functionality. Some boards have the capability to change aspects of their functionality, such as media type, interface types, or power supply wattages, by plugging in different daughter cards. Other boards may identify the type of cable plugged into them.

Board Hardware Version
The hardware revision of the module.

Board Status
Indicates the operational status of the module. This may display as `OK` or `Fail`.

Board Reset Status
This field provides a button that allows you to reset the status of the module. Options are `Resetting` or `Not_Resetting`.

Board Power Supply Status
The operational status of the board power supply. This may display as `OK` or `Fail`.

Board NM Control Status
Indicates whether the module is under network management control. The module, or one or more ports, may be controlled (partitioned) by network management.

Board Partition Status
This field provides a button that allows you to control whether the module is partitioned or enabled. Options are `Enabled, Partitioned` or `Timed_Partition`.

Partition Time (Seconds)
You must enter the duration value when partitioning the board for a specified time with the Timed_Partition option of Board Partition Status.

SynOptics Redundant Power Supply View

Access: *Click on the **Redundant Power Supply** button in the SynOptics Chassis Configuration view.*

This view provides the following information:

Plus 5v Current (Amperes)
A gauge of the amperes of +5 V current from the power supply.

Plus 12v Current (Amperes)
A gauge of the amperes of +12 V current from the power supply.

Ambient Temperature Status
This indicates whether the ambient temperature is normal, i.e., below 40 degrees C. This may display as `Other, Normal_Temperature`, or `Above_Normal_Temp`.

Ambient Temperature (Celsius)
The ambient temperature of the power supply in Celsius.

Primary Configuration
The primary power supply type.

Secondary Configuration
The secondary power supply type.

Diode Status
The status of the summing diode on the 3100R associated with the indicated power supply.

Power Alarm
This indicates whether the power supply is sensing voltage on the backplane.

Note: If your hub does not have a redundant power supply, the information in this view will be red-boxed.

SynOptics Ethernet Local Bridge Configuration View

Access: *From the **Icon Subviews** menu for the Ethernet Device, select **Local Bridge Configuration.***

The SynOptics Ethernet Local Bridge Configuration view contains more detailed network configuration information for the SynOptics 332xS Bridge. This view provides the following information:

Bridge ID
The Bridge MAC address.

Bridge Instances
The Bridge instances present.

Bridge Mode
This field provides a button that allows you to select the current operating mode of bridge from `Forward, Relay, Security` or `Listen.`

Filter Matches
This field provides a button that allows you to select the action taken on the Range Filter Table match from `Pass, Discard,` or `Disable`.

Topology BPDU Timer
The seconds between generations of SynOptics Topology BPDUs.

Hold Time
The time before unacknowledge BPDUs will be resent.

Default Bridge Mode
This field provides a button that allows you to select the default operating mode of the bridge upon power up or restart. Options are `Forward, Relay, Security` or `Listen`.

Default Topology BPDU Timer
NVRAM value for the seconds between generation of SynOptics Topology BPDUs.

Default Hold Time
The values stored in non-volatile storage for the time before unacknowledge BPDUs will be resent.

Write Configuration Settings to NVRAM
This field provides a button that allows you to copy RAM parameter values to NVRAM.

SynOptics Ethernet Local Bridge Range Table

Access: *Click the **Range Table** button in the Ethernet Bridge Configuration view.*

This table provides information on the sources, destinations and bounds of the range of the bridge. Double-clicking on an entry opens a view that allows you to alter the information presented or delete the entry. The following information is provided:

Source Lower
The lower bound of source mac addresses.

Source Upper
The upper bound of source mac addresses.

Destination Lower
The lower bound of destination mac addresses.

Destination Upper
The upper bound of destination mac addresses.

Lower Bound
The lower bound of type field of mac frames.

Upper Bound
The upper bound of type field of mac frames.

Add Entry

Clicking on this button opens a view that allows you to enter the same information as above, and to make the entry valid.

SynOptics Ethernet Local Bridge Spanning Tree Configuration

Access: *From the **Ethernet Bridge Configuration** view, select the **Spanning Tree Configuration** button.*

This view provides the following information:

Bridge ID
The Bridge MAC address.

Bridge Instances
The Bridge instances present.

Protocol Version
The spanning tree algorithm currently in use in the bridge.

Live Hello Time
The current operational value, the same as the Root bridge's hello time.

Hello Time
The seconds between Spanning Tree Hello PDU transmissions.

Live Forwarding Delay
The time spent by the bridge in STP listening and learning states.

Forwarding Delay
The time that bridge ports spend in STP listening and learning states.

Live Maximum Age
The maximum age of the root bridge.

Maximum Age
The maximum seconds STP Hello PDU can exist before being discarded.

Priority
Spanning tree priority of the bridge.

Topology Change Count
STP network topology changes since last restart.

Next Warm Start

This section contains the following information:

Default Protocol Version
NVRAM value of Spanning Tree algorithm.

Default Hello Time
The NVRAM value for the seconds between Spanning Tree Hello PDU transmissions.

Default Forwarding Delay
The values stored in non-volatile storage for the time that bridge ports spend in STP listening and learning states.

Default Maximum Age
The NVRAM value for the maximum seconds STP Hello PDU can exist before being discarded.

Default Priority
The NVRAM spanning tree priority of the bridge.

Write Configuration Settings to NVRAM?
This field provides a button that allows you to copy RAM parameter values to NVRAM.

Spanning Tree Port Data

This table is provided at the bottom of the SynOptics Ethernet Local Bridge Spanning Tree Configuration view. It contains a list of bridge halves. The following information is presented:

Port
A unique value for each bridge instance.

Path Cost
Value of path cost automatically by station.

Port Priority
The STAP priorities of the port.

Designated Cost
The cost of path to root.

Designated Port
The Port priority.

Designated Root
The LAN address of the root bridge.

Designated Bridge
The LAN address of the bridge.

SynOptics Ethernet Local Bridge Filter Table

Access: *From the **Ethernet Bridge Configuration** view, select the **Filter Table button**.*

Double-clicking on any entry opens a view that allows you to alter the information provided or delete the entry. The following information is provided:

Status
The Filter status.

MAC Address
The MAC address in hexadecimal form.

Disposition
The Filter Disposition byte.

Add Entry

Clicking on this button opens a view that allows you to add and validate an entry.

Clear Filter Table?
This field provides a button that allows you to clear the Filter Table.

Application Views

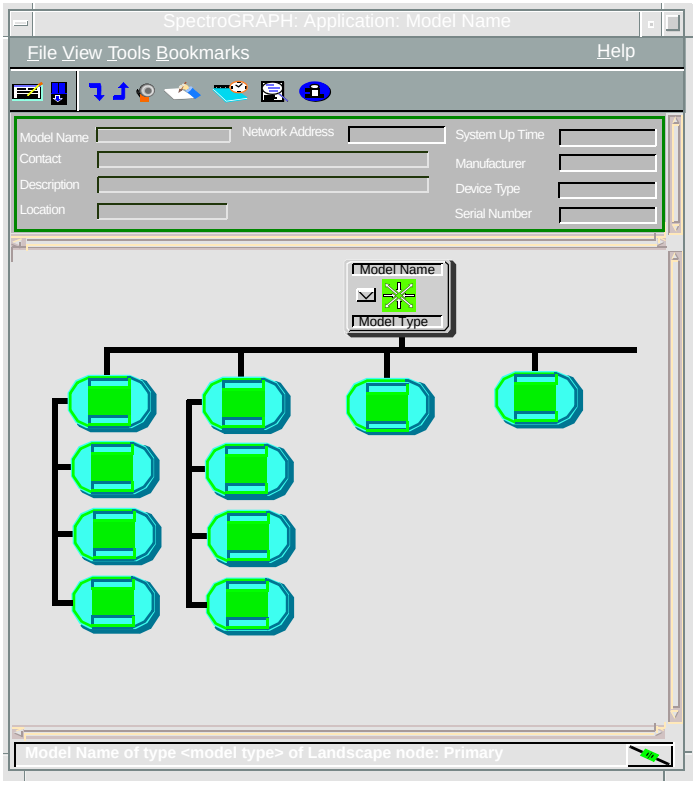
This section describes the Application view and the associated application-specific subviews available for models of SynOptics 3000 devices in SPECTRUM.

When a device model is created, SPECTRUM automatically creates models for each of the major and minor applications supported by the device. The main Application view identifies all of these application models, shows their current condition status, and provides access to application-specific subviews.

Figure 8 shows the main Application view in its default mode (Icon) where each of the application models is represented by an Application icon. The Application icons are arranged hierarchically under a Device icon, with major applications in the top row and their respective minor applications stacked directly below.

If you prefer to see applications displayed by name only, in a single vertical list, select **View>Mode>List**.

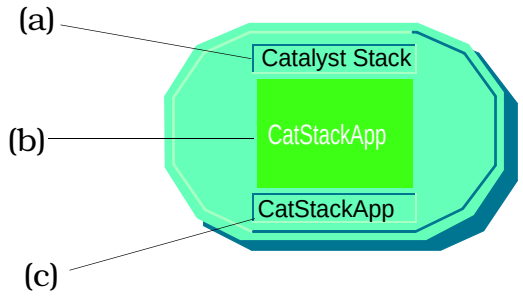
Figure 8: Main Application View



Application Icons

When the Application view is in Icon mode, each of the application models is represented by an Application icon (Figure 9). Double-clicking the Model Name label (a) at the top of the icon opens the associated Model Information view. Any views accessible through these double-click zones are also accessible from the **Icon Subviews.**

Figure 9: Application Icon



a Model Name Label/Model Information View

b Condition Status Label

c Model Type Label/Application-Specific View

Supported Applications

SPECTRUM's applications can be grouped within two general categories as follows:

- Applications associated with non proprietary MIBs. See *Common Applications* below.
- Applications associated with device-specific MIBs. See *Device-Specific Applications* (Page 63).

Common Applications

For the most part, these applications represent the non proprietary MIBs supported by your device. Listed below (beneath the title of the SPECTRUM document that describes them) are some of the common applications currently supported by SPECTRUM.

Note: The documents listed below (in bold font) are available for viewing at: www.aprisma.com/manuals/

- ***Routing Applications***
  - Generic Routing
  - Repeater
  - AppleTalk
  - DECnet

- OSPF
- OSPF2
- BGP4
- VRRP

- ***Bridging Applications***
  - Ethernet Special Database
  - Spanning Tree
  - Static
  - Transparent
  - PPP Bridging
  - Source Routing
  - Translation
  - QBridge

- ***MIB II Applications***
  - SNMP
  - IP
  - ICMP
  - TCP
  - System2
  - UDP

- ***Transmission Applications***
  - FDDI
  - Point to Point
  - DS1
  - DS3
  - RS-232
  - WAN
  - Frame Relay
  - Token Ring
  - Ethernet
  - Fast Ethernet
  - rfc1317App
  - rfc1285App
  - rfc1315App
  - 802.11App
  - SONET

- ***Technology Applications***
  - APPN
  - ATM Client
  - DHCP
  - PNNI
  - rfc1316App
  - DLSw

Device-Specific Applications

Note: Aprisma Management Technologies can provide training, technical assistance, and custom engineering support services for creating application models and their associated views.

The views and subviews available for SynOptics device-specific applications are described in the rest of this section, grouped by major application as listed below:

- *Syn3 Common /Syn3FDDI/Syn3Stck Application*
- *SynOptics 3xxx Ethernet Bridge Application (Syn 3EnetBdg Application)* (Page 64)
- *SynOptics Token Ring Application (SynTRApp)* (Page 64)
- *SynOptics 3xxx FDDI SMT Application(Syn3FDDISMT App)* (Page 64)
- *SynOptics FDDI MAC Application (SynFDDIMAC)* (Page 67)

Syn3 Common /Syn3FDDI/Syn3Stck Application

These applications provide access to the following subviews described in the Configuration views section:

- *SynOptics Configuration View* (Page 44)
- *SynOptics Agent Download View* (Page 45)
- *SynOptics Agent Protocol Configuration View* (Page 47)
- *SynOptics Agent Configuration View* (Page 48)
- *SynOptics Agent Hardware View* (Page 49)
- *SynOptics IP Trap Receiver View* (Page 51)
- *SynOptics IPX Trap Receiver View* (Page 51)
- *SynOptics Chassis Configuration View* (Page 52)

SynOptics 3xxx Ethernet Bridge Application (Syn 3EnetBdg Application)

This application provides access to the following subviews described in the ***Bridging Applications*** documentation or in the *Configuration Views*:

- *SynOptics Ethernet Local Bridge Configuration View* (Page 55)
- *SynOptics Ethernet Local Bridge Range Table* (Page 56)
- *SynOptics FDDI SMT Configuration View* (Page 64)
- *SynOptics Ethernet Local Bridge Filter Table* (Page 59)

SynOptics Token Ring Application (SynTRApp)

This application provides access to the SynOptics Token Ring Configuration View described in the *Configuration Views*.

SynOptics 3xxx FDDI SMT Application(Syn3FDDISMT App)

This application provides access to the following subviews:

- *SynOptics FDDI SMT Configuration View (Page 64)*
- *SynOptics FDDI SMT Parameters View* (Page 66)
- *SynOptics FDDI SMT LER Thresholds Table View* (Page 66)

SynOptics FDDI SMT Configuration View

This view displays the following SMT information:

SMT Index
A unique value for each SMT.

Station Id
Identifies an FDDI station.

CF State
The attachment configuration for the station or concentrator.

Station Status
The operating status of the primary and secondary paths within this station.

Bypass Present
A flag indicating if the station has a bypass on its AB port pair.

ECM Status
The current state of the ECM state machine.

Remote Disconnect Flag
Indicates that the station was remotely disconnected from the network.

Peer Wrap Flag
The peer wrap flag in CFM.

Operation Version
The version currently being used.

Highest Version
The highest version of SMT that this station supports.

Lowest Version
The lowest version of SMT that this station supports.

MIB Version
The version of this MIB.

MAC Count
The number of MACs in the station or concentrator.

Non-Master Count
The number of Non Master Ports (A, B, or S ports).

Master Count
The number of master ports in a node. If the node is a concentrator, the value is zero.

Set Count
Indicates that a set operation on the MIB has occurred.

Last Set Station Id
Identifies the last station that was set.

Time Stamp
The value of time stamp.

Transition Time Stamp
The value of transition time stamp.

Available Paths
The paths available for this SMT.

Configuration Capabilities
The configuration capabilities of this SMT.

SynOptics FDDI SMT Parameters View

This view displays the following SMT information:

Intelligent Insertion Policy
The intelligent insertion policy used by the SMT on this concentrator.

Intelligent Insertion Mask
The intelligent insertion policy Bit Mask.

Station Action
This value can be set as follows:

- `other` - badvalue error
- `connect` - generates a connect signal to ECM to begin a connection sequence
- `disconnect` - generates a disconnect signal to ECM and sets the disconnect flag
- `path Test` - initiates a path test
- `self Test` - initiates a station test
- `disable A` - disables port A if it is in the peer mode
- `disable B` - disables port B if it is in the peer mode
- `disable M` - disables all M ports

Notify Timer
The timer used in the neighbor notification protocol (in seconds).

Trace-Max Expiration
Indicates that a bypass is present.

User Data
Thirty-two octets of user defined information.

Manufacturer Data
Twenty-nine bits of manufacturer's data.

Configuration Policy
Indicates the configuration capabilities of a node.

Connection Policy
Indicates the connection policies in effect in a node.

Status Report Policy
Indicates that the node will generate status reporting frames for events and conditions.

SynOptics FDDI SMT LER Thresholds Table View

This view displays the following SMT information:

SMT Index
A unique value for each SMT.

Port Index
Identifies each port.

LER Cutoff
The link error rate estimate at which a link connection will be broken.

LER Alarm
The link error rate estimate at which a link connection will generate an alarm.

LER Estimate
A long term average link error rate. Reported in the absolute value of the base 10 logarithm.

LER Condition
The condition becomes active when the value of the LER Estimate is less than or equal to the LER Alarm.

LEM Reject Count
A link error monitoring count of the times that a link has been rejected.

LEM Error Count
The aggregate link error monitoring count set to zero only on station initialization.

LCT Error Count
The count of consecutive times the link confidence test has failed during connection management.

LCT Failure Count
The number of times the link confidence test has failed.

SynOptics FDDI MAC Application (SynFDDIMAC)

This application provides access to the following subviews:

- *SynOptics FDDI MAC Configuration View* (Page 67)
- *SynOptics FDDI MAC Parameters View* (Page 68)
- *SynOptics FDDI MAC Performance View* (Page 69)
- *SynOptics FDDI MAC Detail View* (Page 70)
- *SynOptics FDDI MAC Station Table View* (Page 71)

SynOptics FDDI MAC Configuration View

Access: *From the **Icon Subviews** menu for the SynFDDIMAC Application icon, select **Configuration.***

This view displays the following FDDI MAC information:

SMT Index
A unique value for each SMT.

MAC Index
Identifies each MAC.

SMT Address
A forty-eight bit individual address of the MAC used for SMT frames.

RMT State
Indicates the current state of the RMT State Machine.

Hardware Present
Indicates the presence of hardware support for this MAC object.

Upstream Neighbor
The MAC's upstream neighbor's long individual MAC address.

Downstream Neighbor
The MAC's downstream neighbor's long individual MAC address.

Old Upstream Neighbor
The previous value of the MAC's upstream neighbor's long individual MAC address.

Old Downstream Neighbor
The previous value of the MAC's downstream neighbor's long individual MAC address.

Duplicate Address Test
The duplicate address test flag.

Duplicate Address Flag
The RMT flag duplicate address flag.

UNA Duplicate Address Flag
Indicates that the upstream neighbor reported a duplicate address condition.

Current Path
Indicates the path into which this MAC is currently inserted.

Frame Condition
Indicates the MAC's optional Frame Status processing functions.

Available Paths
Indicates the path available for this MAC.

Frame Status Functions
Indicates the path available for this MAC.

SynOptics FDDI MAC Parameters View

Access: *From the **Icon Subviews** menu for the SynFDDIMAC Application icon, select **Parameters**.*

This view displays the following FDDI MAC information:

SMT Index
A unique value for each SMT.

MAC Index
Identifies each MAC.

SMT Address
A forty-eight bit individual address of the MAC used for SMT frames.

T_Neg
The T_Neg value passed to the MAC.

T_Req
The T_Req value passed to the MAC.

T_Max
The T_Max value passed to the MAC.

T_Max Capability
The maximum time value of T_Max that this MAC can support.

TVX_Value
The TVX_Value passed to the MAC.

TVX Capability
The maximum time value of TVX_Value that this MAC can support.

Frame Error Threshold
A threshold for determining when a MAC condition report will be generated.

Frame Error Ratio
The value of this ratio.

MA Unit Data Available
This variable shall take on the value of the MAC available flag in RMT.

MA Unit Data Enable
Defines a vendor specific characteristic of this managed object class.

Not Copied Flag
Indicates the not copied condition is present when true.

Not Copied Threshold
A threshold for determining when a MAC condition report will be generated.

SynOptics FDDI MAC Performance View

Access: *From the **Icon Subviews** menu for the SynFDDIMAC Application icon, select **Performance.***

This view displays the FDDI MAC performance information. Refer to the ***SPECTRUM Views*** documentation for information on performance views.

SynOptics FDDI MAC Detail View

Access: *From the **Icon Subviews** menu for the SynFDDIMAC Application icon, select **Detail.***

This view displays the following FDDI MAC information:

SMT Index
The value of the SMT associated with this MAC.

MAC Index
The variable for identifying this MAC instance.

Frames Not Copied Ratio
A ratio of frames not copied compared to those copied.

Token Count
The number of times the station has received a token on this MAC.

Nonrestricted Token
The number of nonrestricted tokens sent by the NMM.

Frames
The number of frames received.

Errors
The number of errors.

Lost Frames
The number of lost frames.

Frames Transmitted
The number of frames transmitted.

Error Count
The number of errors.

SMT Frames
The number of SMT frames received by the NMM.

LLC Frames
The number of LLC frames received by the NMM.

Frames Copied
The number of frames copied.

Frames Not Copied
The number of frames not copied.

Ring Optional Count
The number of times the ring has entered the Ring Optional state from the Ring Not Optional state.

TVX Expired Count
The number of times that TVX has expired.

Late Count
The number of TRT expirations since this MAC was reset or a token was received.

Beacon Count
The number of beacon counts received by this NMM.

SynOptics FDDI MAC Station Table View

Access: *From the **Icon Subviews** menu for the SynFDDIMAC Application icon, select **Station Table.***

This view displays the following FDDI MAC information:

Ring
A value to identify the ring.

MAC Address
The MAC address for this station.

Station Id
The value to identify this station.

Node Class
The station type of node. If the MAC address is for a station the value will be “0”. If the MAC address is for a concentrator the value will be “1”.

MAC Count
The number of MACs in this node.

Non-Master Pts
The number of non- master ports.

Master Pts
The number of master ports.

Performance Views

This section provides brief descriptions of the Performance views available for models of SynOptics 3xxx devices in SPECTRUM.

Performance views provide statistical information about the operation of the device and packet information for the device and its ports. The following performance view is described in this section:

- *Device Performance View*

Device Performance View

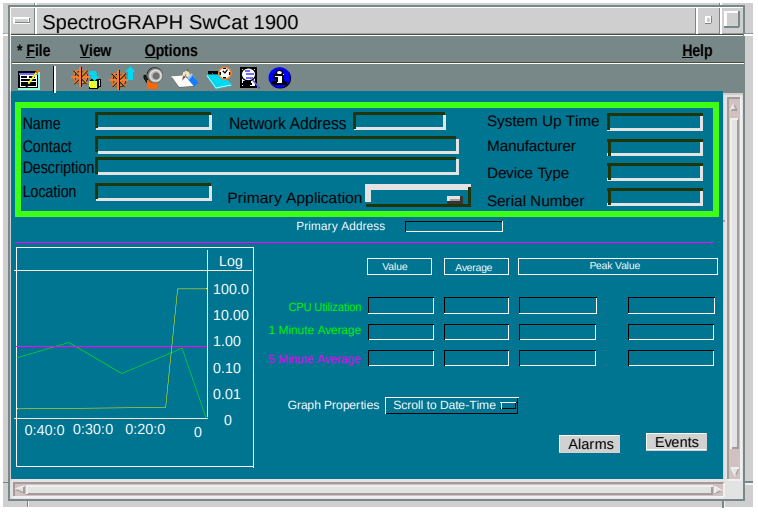
Access: *From the* ***Icon Subviews*** *menu for the SynOptics 3xxx Device icon, select* ***Device Performance.***

This view includes both a graph and a table that show current, average, and peak values for the following performance statistics:

- CPU Utilization
- 1 Minute Average
- 5 Minute Average

The view also provides button access to the Enterprise Alarm Manager and the Event Log.

Figure 10: Performance View

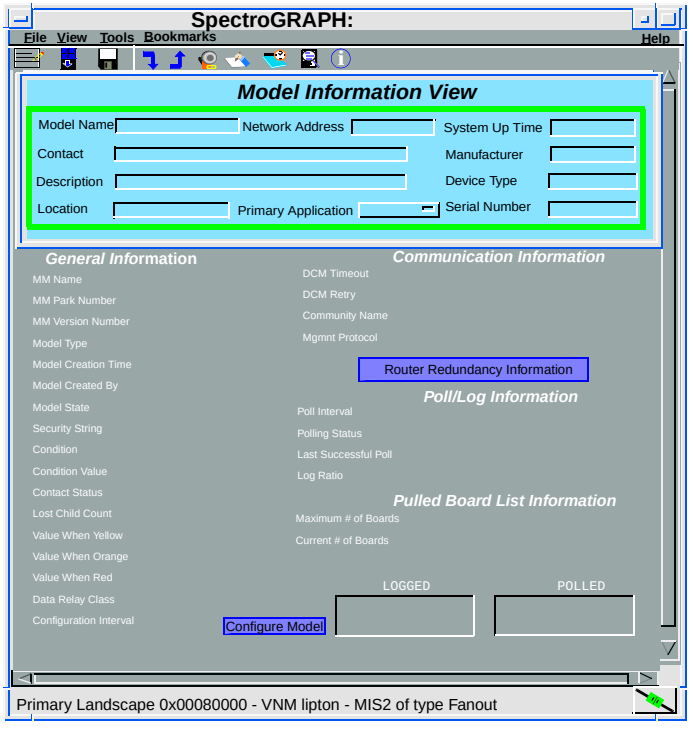


Model Information View

This section describes the Model Information view available for models of SynOptics 3xxx devices in SPECTRUM.

Model Information views provide descriptive and configuration information about SPECTRUM models of individual devices, interfaces, and applications. Figure 11 shows an example of the Model Information view for a Cisco Catalyst interface. Model Information views are also available for each of the Interface icons in the Interface Device and Interface Device Topology views, and for each of the Application icons in the Application view. Although these views may vary slightly depending on the particular entity being modeled, their basic layout and content are similar for most SPECTRUM management modules. Therefore these views are described in more detail in ***SPECTRUM Views***.

Figure 11: Model Information View



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